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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,829	03/12/2001	G. Frederick Hutter	CHR 01-34	9980

36876 7590 06/09/2004

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EXAMINER	
DICUS, TAMRA	

ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 06/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/803,829	HUTTER ET AL.	
	Examiner	Art Unit	
	Tamra L. Dicus	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This Office Action is responsive to the RCE and arguments filed May 12, 2003. The Examiner acknowledges the declarations and IDS.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by 5,521,229 to Lu et al.

Lu teaches a polymer composite comprising the polymerization product prepared from a microemulsion (colloidal dispersion) comprising free-radically ethylenically unsaturated polar monomers. At col. 1, lines 23-25, Lu discloses microemulsions are colloidal dispersions. Lu teaches several types of such monomers that are amine-containing where a mixture comprises about 2 to about 40 percent by water, where the solids content is about 25 up to 50 percent (Table A) as per applicant claims (see further detail below). For example, at col. 8, lines 50-55 Lu employs the same starting monomers (N, N-dimethylaminoethyl methacrylate) as applicant uses in the specification as in Example 2.

The first type is a water-soluble free-radically copolymerizable ethylenically unsaturated polar monomer having a range of 2 to 60 weight percent which is included in applicant's

claimed range of 1 up to 8 and up to about 25 percent by weight, where such monomer may be nonionic, e.g., acrylamide, or may be ionic (cationic or anionic). Mixtures of nonionic and ionic monomers may be used. Ionic monomers conforming to these criteria are selected from the group consisting of sodium styrene sulfonate, potassium acrylate, sodium acrylate, sodium methacrylate, ammonium acrylate, sodium 2-acrylamido-2-methylpropane sulfonate, 4,4,9-trimethyl-4-azonia-7-oxa-dec-9-ene-1-sulfonate, N,N-dimethyl-N-(beta-methacryloxyethyl)ammonium propionate betaine, trimethylamine methacrylamide, 1,1-dimethyl-1-(2,3-dihydroxypropyl)amine methacrylamide, and other zwitterionic ethylenically -unsaturated monomers having the requisite solubility requirements, and mixtures thereof.

The second type contains 2 to 60 weight percent of ethylenically -unsaturated free-radically copolymerizable monomers and selected from the group consisting of N-vinylpyrrolidone, N-vinylcaprolactam, methacrylic acid, hydroxyethyl methacrylate, styrene sulfonic acid, N-substituted acrylamides, N,N-disubstituted acrylamides, N, N-dimethylaminoethyl methacrylate, 2-acrylamido-2-methyl propane sulfonic acid, and mixtures thereof, which is included in applicant's claimed range of 1 to 25 and up to and including 50 percent by weight. Lu explains the most-preferred monomers include those selected from the group consisting of acrylic acid, N-vinylpyrrolidone, N-vinylcaprolactam, N,N-dimethylacrylamide, and mixtures thereof, because of the favorable properties, such as physical strength, that they can impart to the polymer composite.

Lu further teaches the addition of a nonionic or ionic (cationic or anionic) surfactants of 5 to 70 weight percent in the same range as applicant.

Lu teaches further comprising 0.01 to about 5 percent by weight of polymerization initiator of either photo or thermal type, which suffices applicant's claimed catalytic amount. See col. 1, line 23, col. 3, lines 30-60, col. 8, lines 5-62, and col. 9, lines 46-47.

Lu discloses the claimed invention and although he teaches additives such as pH adjusters at col. 10, line 10, Lu does not expressly disclose adjusting an emulsion polymerization product to a pH range of about 3.5 up to 7.0. Additionally, Lu teaches the same materials as applicant and therefore the pH range of 3.5 to 7.0 would be expected to be the same (see col. 8, lines 47-51, col. 9, lines 17-19, and at col. 10, line 10). However, patentability resides in the product, the process not withstanding. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps (see MPEP 2113). Furthermore, the invention defined by a product-by-process invention is a product NOT a process. *In re Bridgeford*, 357 F. 2d 679. It is the patentability of the product claimed and NOT of the recited process steps which must be established. *In re Brown,* 459 F. 29 531.

Regarding claims 4 and 5, since Lu teaches the same ethylenically unsaturated monomers as mentioned above, and at col. 15, lines 60-col. 16, line 25, teaches the use of cationic surfactants selected from the group consisting of quaternary ammonium salts in which a higher molecular weight substituent(s) on the nitrogen is/are often (a) higher alkyl group(s), containing about 10 to about 20 carbon atoms, and the lower molecular weight substituents may be lower alkyl of about 1 to about 4 carbon atoms, such as methyl or ethyl. Lu further explains in some instances the groups may be substituted with hydroxy (encompasses hydroxyl groups of new claim 5). Specific examples of such hydroxyl groups include the **same** polymer as Applicant claims in new claim 5 such as hydroxyethyl methacrylate at col. 8, lines 47-48. The specific

examples of Lu use quaternary ammonium halide surfactants selected from the group consisting of methylbis(2-hydroxyethyl)coco-ammonium chloride or oleyl-ammonium chloride, and methyl polyoxyethylene (15) octadecyl ammonium chloride where one or more of the substituents may include an aryl moiety or may be replaced by an aryl, such as benzyl or phenyl. It would be inherent in the polymer composition of Lu to produce vinylbenzltrimethylammonium chloride, methacrylamidopropyltrimethylammonium chloride, or combinations thereof since Lu teaches the options as discussed with the **same** components in the polymeric composition in the combinations of Lu above, although Lu does not explicitly mention applicant's specific combination.

3. Regarding claim 6, Lu teaches optionally further comprising a chain transfer agent. Examples of chain transfer agents Lu uses are selected from the group consisting of carbon tetrabromide, alcohols, mercaptans, and mixtures thereof, comprising up to about 75 percent by weight of a chain transfer agent of the mixture, meeting applicant's requirements of up to 4 percent. See col. 12, lines 30-50.

4. Regarding claim 7, Lu teaches examples of nonionic block copolymer trademarked surfactants that include ethylene oxide-propylene oxide block copolymers and oxyethylene fatty acid esters at col. 14, lines 10-25.

5. Regarding claim 8, at col. 15, line 60, Lu uses quaternary ammonium salts as cationic surfactants. Lu continues to describe where at least one higher molecular weight group up to three lower molecular weight groups are linked to a common nitrogen atom to produce a cation using from 1 to about 20 carbon atoms at col. 16, lines 1-25, meeting applicant's claimed a range of 8 to 22 carbon atoms. Alkyltrimethylammonium and alkylpyridinium salts are and are

derived from quaternary ammonium salts. At col. 15, lines 64-66, Lu further describes using an anion selected from the group consisting of a halide (bromide, chloride, etc.) and an alkosulfate (methosulfate). No patentable distinctions are seen.

6. Regarding claims 9- 10, at col. 12, lines 14-25, Lu teaches thermal initiator benzoyl peroxide and azobisisobutyronitrile and mixtures thereof comprising 0 to 5 percent by weight, meeting applicant's claimed range of 0.1 to 3 percent by weight.

7. Regarding claim 11, Lu teaches the same redox initiators at col. 9, lines 40-58. Suitable oxidation-reduction initiators are used, where the reducing agents are selected from the group consisting of sodium metabisulfite and sodium bisulfite; and 4,4'-azobis(4-cyanopentanoic acid) and its soluble salts (e.g., sodium, potassium).

8. Regarding claim 12, the recitation of the polymerization product being adjusted via the addition of an acid is a process limitation and does not constitute a limitation in any patentable sense. Patentability resides in the product, process not withstanding. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. Patentability of an article depends on the article itself and not the method used to produce it (see MPEP 2113). Furthermore, the invention defined by a product-by-process invention is a product NOT a process. *In re Bridgeford*, 357 F. 2d 679. It is the patentablitity of the product claimed and NOT of the recited process steps which must be established. *In re Brown,* 459 F. 29 531.

However, since Lu teaches the same water-soluble acids as applicant uses at col. 8, lines 47-51, col. 9, lines 17-19, and at col. 10, line 10 describes such aforementioned initiator

additives as pH adjusters, the pH of the polymeric product is an inherent characteristic. No patentable distinctions are seen.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1 and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over 5,521,229 to Lu et al., as applied to claim 1 above, and further in view of 5,372,884 to Abe et al.

Lu teaches the claimed invention except for expressly an ink jet receptive coating disclosing:

1. including acetic, propionic, glycolic, or lactic acids,
2. a pigment, and
3. a substrate of paper, plastic, wood, etc.

Lu suggests dyes and pigments are useful additives to a polymeric composite at col. 10, line 10 (which suggest applicability to ink jet receptive coatings). Abe teaches an ink jet receptive coating comprising the same additives such as fatty acids or metal salts of fatty acids, silica, acetic acid, pH controlling agents such as sulfuric acid, color pigments, and a support

(substrate) of paper, pulp, resin films (plastic), disclosing the option of having at least one side coated on the support (see col. 5, lines 1-65). Further Abe includes using other additives such as emulsions and latexes (col. 6, line 12). See also col. 6, lines 50-60. Lu and Abe are analogous art because they involve the same field of endeavor namely the polymeric coating technology.

It would have been obvious to one of ordinary skill in the art to modify the polymeric composition of Lu to include:

1. the acids of claim 13 because Abe teaches at col. 3, lines 2-5 a cation-modified non-spherical colloidal silica suspension containing acid components such as acetic acid, citric acid, sulfuric acid and phosphoric acid for colloid stabilization advantages.

2. ethylene and acrylic acid, pigments such as clay, kaolin, talc, barium sulfate, pH regulators, and coloring pigments as taught by Abe at col. 6, lines 15-24 to produce a resin-coated paper exhibiting various characteristics such as a gloss, water resistance, film and drying properties (see further col. 7, lines 15-65, and Example 1).

3. Further Lu uses the cations to stabilize the cationic emlusion (col. 8, lines 50-55). It would have been obvious to uses pH adjusters (col. 10, line 10) to adjust the pH to within 3.5 to 7.0 because Lu uses the pH adjusters, cationic monomers, and amine acids and mixtures thereof, which are the same ones Applicant uses as in col. 8, lines 50-55 of Lu, to reduce the pH of the cationic emulsion, just as applicant desires.

Response to Arguments

Applicant's arguments filed 5-12-2003 have been fully considered but they are not persuasive. The declarations filed on 5-12-2003 under 37 CFR 1.131 has been considered but is ineffective to overcome the Lu and Abe et al. references.

Applicant argues that Lu produces a microemulsion and not an emulsion. However, this position is not persuasive. Applicant's independent claim 1 merely states "an emulsion", **never** specifying what type of emulsion. The difference between microemulsions and emulsions as pointed out by the Applicant and declarants is irrelevant because "colloidal dispersion" is generic enough to include a microemulsion. Furthermore, the definition of microemulsion that Applicant included from the Hypertext Guide to Terms in Colloid and Polymer Science very well defines a microemulsion as a colloidal dispersion. Therefore, it is the position of the Examiner that the term "emulsion" encompasses the term "microemulsion" and hence is taught and anticipated by Lu.

Applicant also argues the emulsion polymerization reaction taught by the Applicants are latexes. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., emulsions of latexes) are not recited in the rejected claim(s). Additionally, Lu's polymer composition does form a latex as by definition a microemulsion forms a latex end product. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant alleges the invention is a two-step process and contrasts Lu alleging Lu teaches a one-step process. Applicants assert their second step is one of pH adjustment or

neutralization. However, as set forth above, since Lu teaches the same water-soluble acids as applicant uses at col. 8, lines 47-51, col. 9, lines 17-19, and at col. 10, line 10 describes such aforementioned initiator additives as pH adjusters, which is obvious to include in a range of 3.5-7.0 because Lu employs pH adjusters for stabilizing the cationic emulsion. Applicant has not provided any objective evidence to state Lu's pH adjusters would not serve to produce a second step of pH adjustment or neutralization. The Examiner does not agree with Applicants, Dr. Samaranayake, and Dr. Sisson's allegation towards the statement that the pH adjustment process would produce a one-phase homogenous colloidal dispersion products. A colloidal dispersion cannot be homogeneous. By definition, as defined by the Hypertext Guide to Terms in Colloid and Polymer Science, under both the emulsion and microemulsion definitions, a colloidal dispersion is a liquid in another liquid usually oil and water. Therefore a colloidal dispersion is not homogeneous as Applicants and Declarants allege. Applicants and Declarants further argue that Lu incorporates solid products and not colloidal dispersion polymer compositions. Lu does not exclude teaching colloidal dispersions, which is what Applicant claims. As set forth above, Lu teaches microemulsions which clearly include colloidal dispersions. No differences are seen despite applicant's allegations to differences.

Applicant further alleges Lu does not teach the colloidal dispersion reacts to produce emulsion polymerization products and points to Lu at col. 1, lines 23-55, specifically teaching microemulsions are water-oil colloidal dispersions. The Applicant appears to ignore the explicit teaching of the Lu reference within the aforesaid column. Applicant and Declarants further allege a microemulsion cannot be formed from an emulsion containing a certain level of

surfactant. Neither applicants nor Declarants have submitted objective evidence to disprove this allegation. Persuasive comparative test examples could be used to overcome the rejections.

Applicants further argue Lu must employ a cosurfactant. That Lu includes a cosurfactant is irrelevant and does not teach away from the instant invention because the same materials applicant claims are provided for by Lu as set forth above.

Applicant and Declarants also allege the invention incorporates a dispersion that is one-phase and therefore would not employ photo initiators in an emulsion polymerization to produce a latex. The Examiner does not agree with Applicant's characterization of one-phase. By definition, a dispersion is two-phase, not one-phase. The same starting materials are used by Lu. That theses same materials produce an emulsion polymerization is inherently provided. Applicants or Declarants do not show that Lu's materials cannot function as the instant invention or could not form an emulsion polymerization product such as a latex. Further in response to Applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the structure of the polymer, a latex, and the phases) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicant and Declarants further urge that Lu's purpose is to produce a two solid substantially nonporous bicontinuous phases, consisting of two phases and that Lu teaches a hydrophobic phase, while Applicants claim a one phase homogenous cationic acrylic colloidal dispersion polymer composition. Independent claim 1 simply does not state what phase if any, the polymer is, or its structure. Moreover, Lu does <u>not</u> solely teach a hydrophobic phase, Lu also teaches a hydrophilic phase in

Example 17 and patented claim 9. Further, Applicant does not appear to exclude a one-phase. Conclusively, the 102(b) rejection stands as being anticipated.

Applicant and Declarants allege the hydrophobic phase of Lu would render it unsuitable for use with water-based ink jet coatings. This argument is not persuasive because Applicants nor Declarants have shown that the composition of Lu would not work.

Applicant and Declarants argue an ink jet receptive coating must be water permeable and alleges Lu does not teach such a coating. Again, the Applicant is arguing a limitation not present in any of the claims (water permeable ink jet coating). Applicant further alleges the hydrophobic phase of Lu would repel water-based ink. However, Lu does include a hydrophilic phase as well (col. 4, lines 15-16). Applicant argues that the hydrophilic phase would be slow released. However, if both phases (hydrophilic and hydrophobic) are present, one is not always necessarily slow released. In addition, applicant has not shown any experimental evidence, that the product of Lu would not be able to retain the ink. Since Lu is made of latexes (as applicant's invention is made of) it can only be expected that the same latexes would be able to act in the same manner, absent any evidence to the contrary. Therefore, the Examiner does not believe the composition of Lu would not work as Applicant desires. Further, Applicant has not shown the composition of Lu would not work.

In response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As stated above, Lu does teach the polymeric composition, and is very well combinable since Abe discloses the **same** latex

additives as Applicant claims for a cationic composition. Applicant and Declarants contest that Lu teaches the microemulsion can be coated on a substrate, but states the coating is unsuitable for ink jet receptive coatings. Declarant Sisson states Lu does not suggest using his polymeric composition as an ink jet coating. However, as stated previously, hydrophobic and hydrophilic phases are present, which could mean that the coating would be suitable as an inkjet. Such statements are not persuasive because Lu teaches the polymeric composition as a coating and, again, the additives as Applicant claims (a pigment) are the **same** as taught by Abe. The fact that applicant has recognized another advantage (employs the polymeric composition as a binder) which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Applicants and Declarants allege further that Abe's compounds are pigment-like where Applicants compounds are significantly different as claimed by Applicants. This argument is not persuasive since Lu teaches the polymeric composition as a coating and, again, the additives as Applicant claims (a pigment-see instant claim 15) are the **same** as taught by Abe. Applicant notes Declarants stating "a skilled artisan would understand that Abe's compounds are pigment-like in nature". Then Abe's "pigment-like in nature" compound clearly reads on the Applicant's instant limitation "the coating further comprises a pigment" as per instant claim 15. The Examiner sees no difference.

Applicant argues the cationic acrylic colloidal dispersion polymer and process thereof is not provided for by the combination of Lu and Abe. However, Lu teaches the same ethylenically

unsaturated monomers as mentioned above, and at col. 15, lines 60-col. 16, line 25, teaches the use of cationic surfactants selected from the group consisting of quaternary ammonium salts.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, motivation exists since Lu does in fact teach using both hydrophobic or hydrophilic materials, see *especially* col. 3, lines 15-16 describing the inherent behavior of ink for coating on a substrate at col. 6, line 9, and Abe teaches employing a cationic composition comprising the **same** additives as Applicant claims (Abe Abstract).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is 571-272-1519. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 20, 2004

[tld]

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